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(54) **ALIGNMENT GUIDE**

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A47B 96/16	(2006.01)
A47B 88/04	(2006.01)
A47B 88/08	(2006.01)

(52) **U.S. Cl.**

CPC ***A47B 96/16*** (2013.01); ***A47B 88/04*** (2013.01); ***A47B 88/044*** (2013.01); ***A47B 88/08*** (2013.01)

(58) **Field of Classification Search**

CPC A47B 88/04; A47B 88/044; A47B 88/08; A47B 96/16; A47B 96/14

USPC 312/402, 404, 405, 326, 329, 348.4, 312/334.1, 334.8, 352

See application file for complete search history.

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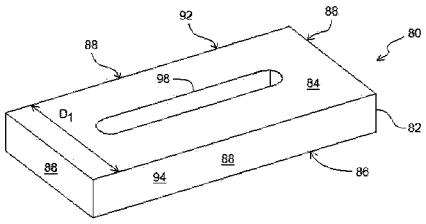
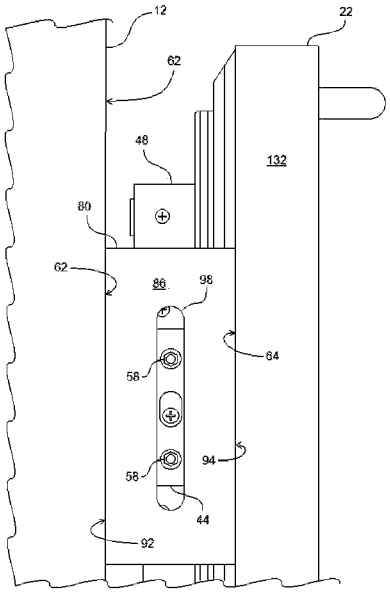
(57) **ABSTRACT**

An alignment guide and method of assembling an apparatus with an alignment guide is provided. The alignment guide comprises a body having a first abutment surface and a second abutment surface. The apparatus comprises a cabinet defining an enclosure, a door, and a coupling mechanism for movably coupling the door to the cabinet to permit translational movement of the door relative the cabinet. The method comprises aligning the door relative to the cabinet with the alignment guide by abutting the first abutment surface of the alignment guide against a surface of the cabinet while abutting the second abutment surface of the alignment guide against a surface of the door. The method further comprises fixedly coupling the door to a support member of the coupling mechanism while the door is aligned to the cabinet with the alignment guide.

18 Claims, 8 Drawing Sheets





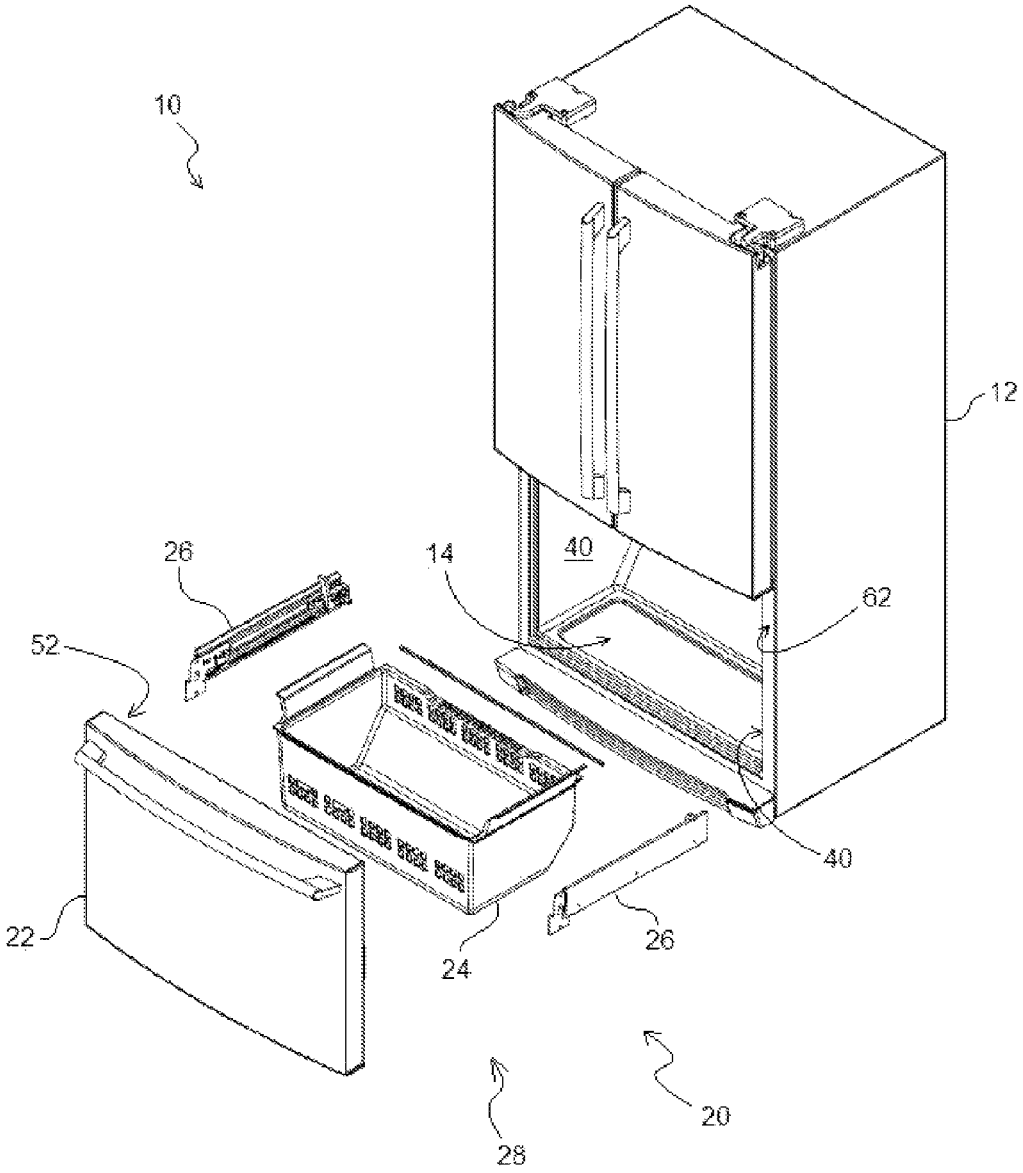


FIG. 1

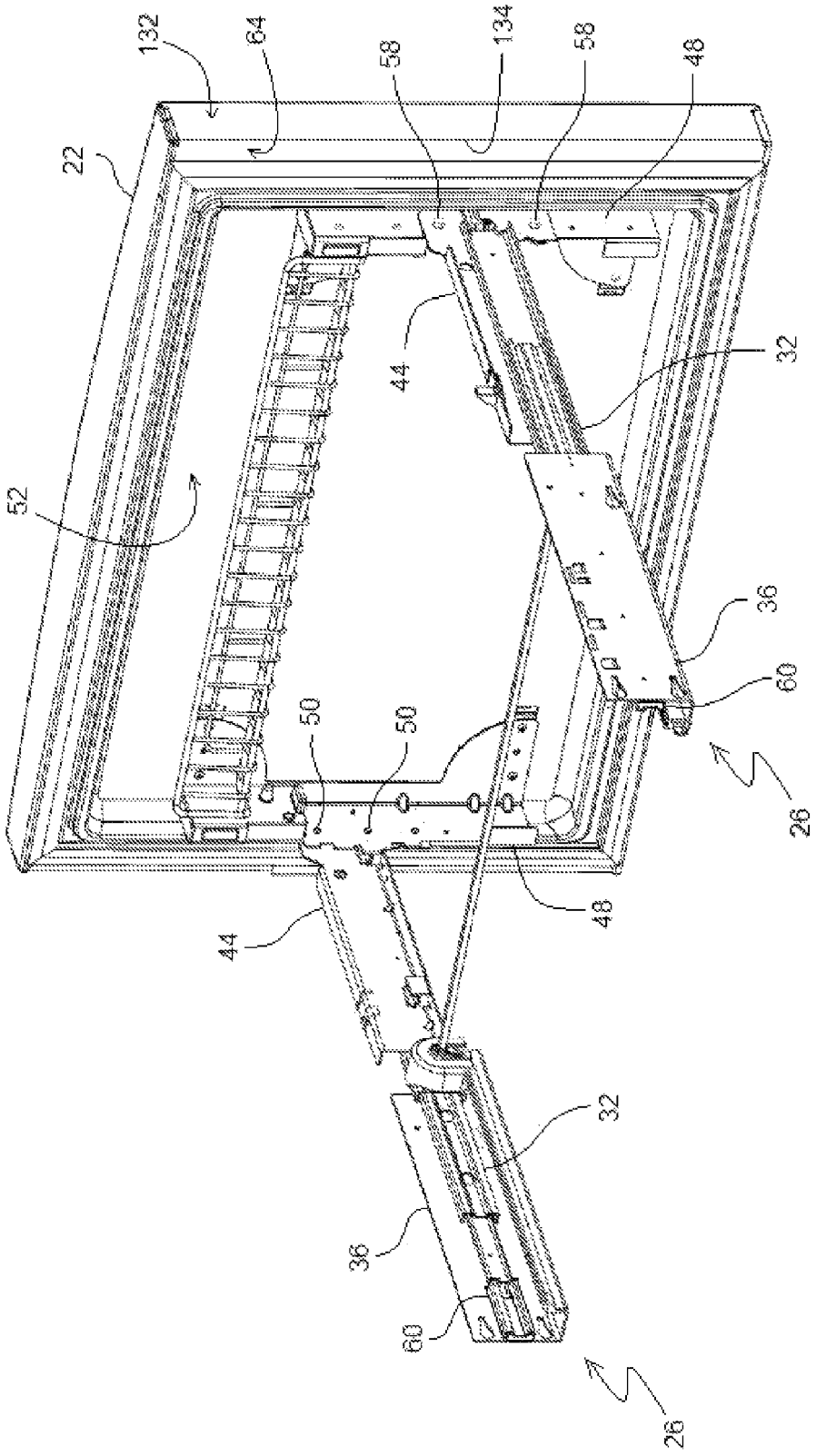


FIG. 2

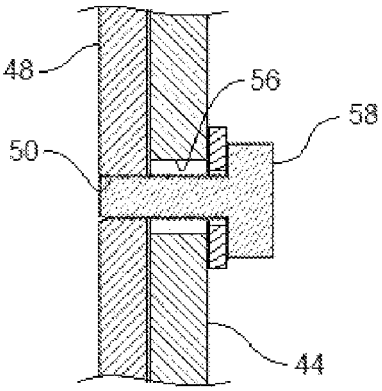


FIG. 4

FIG. 3

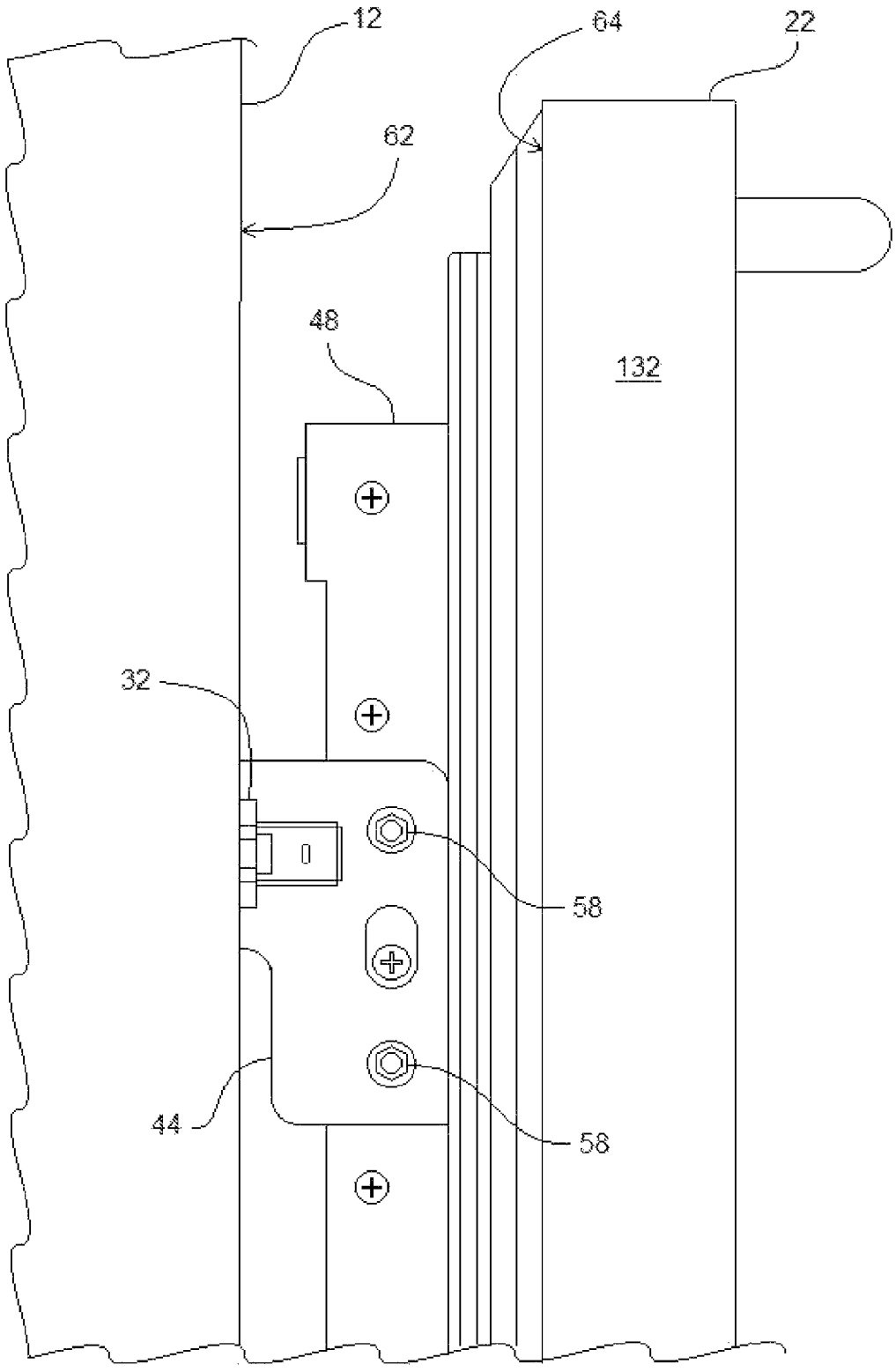


FIG. 5

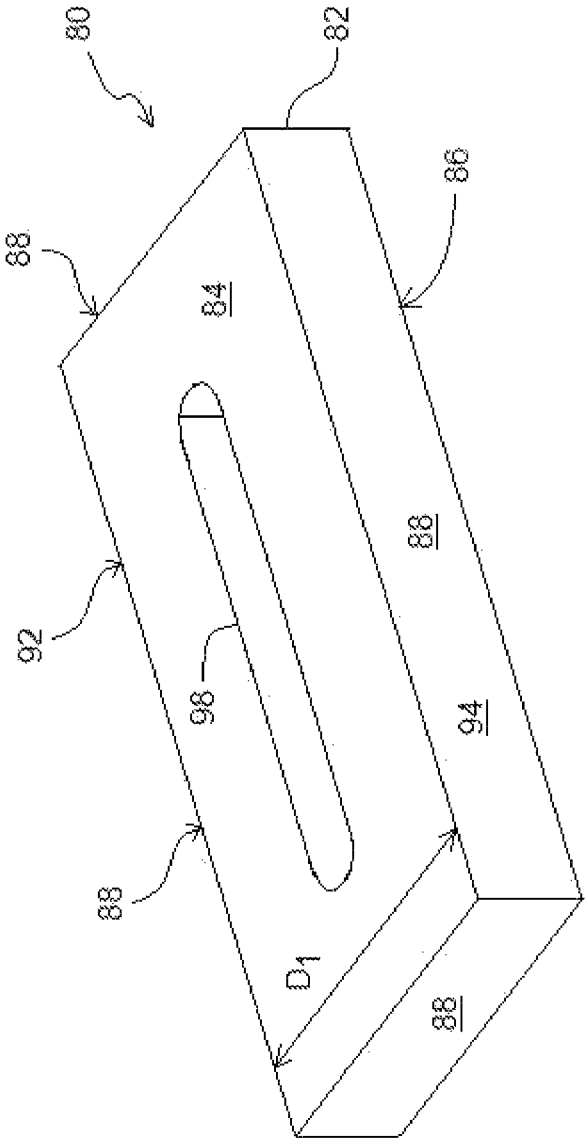


FIG. 6

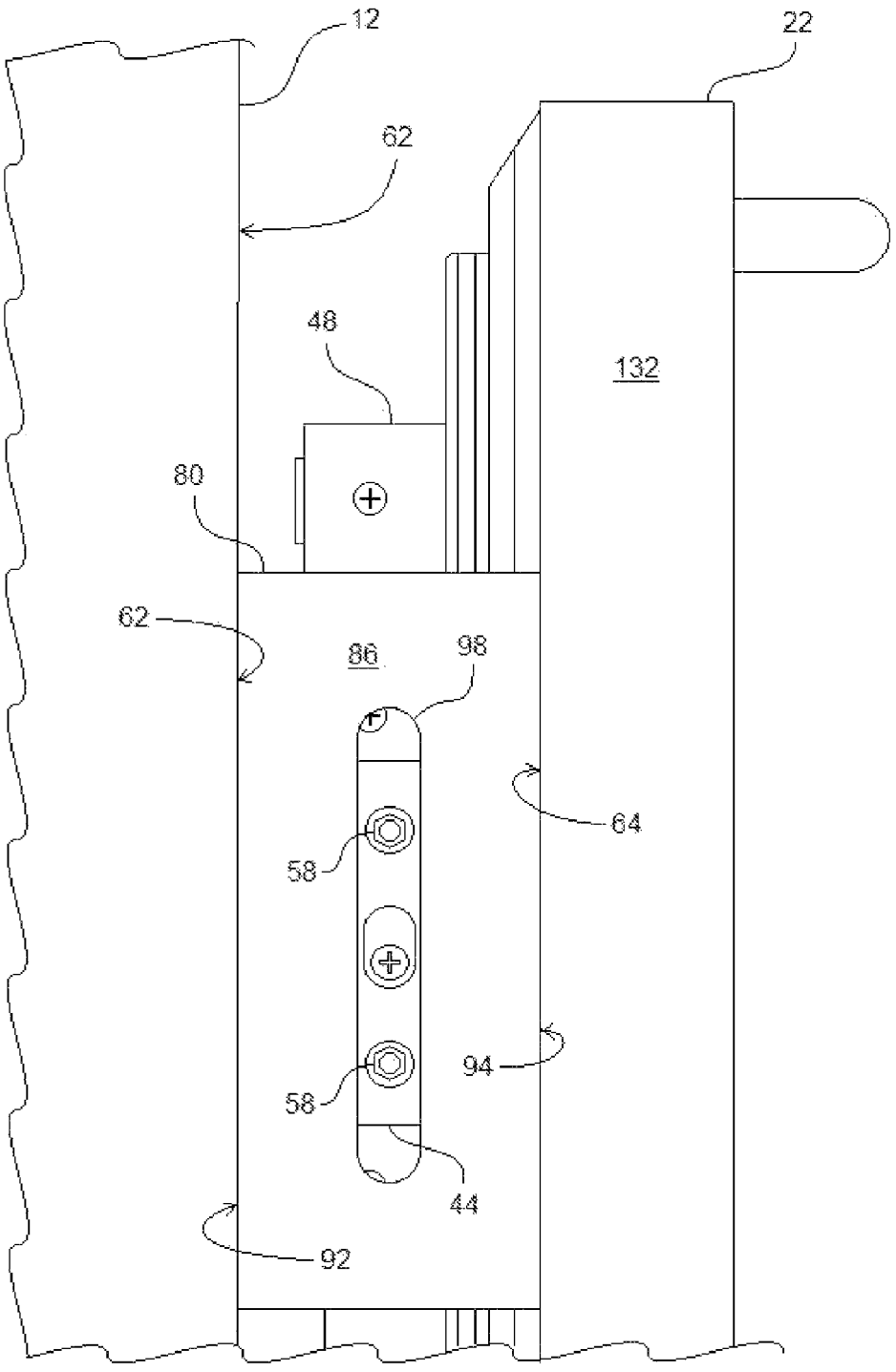


FIG. 7

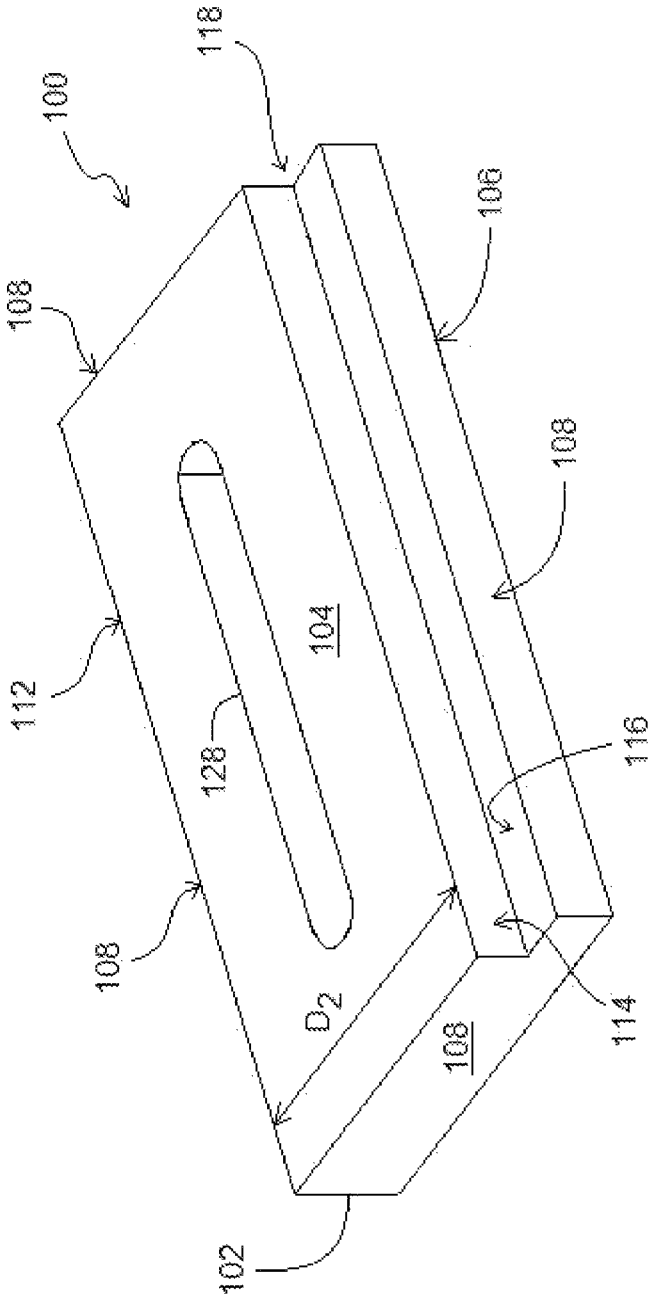


FIG. 8

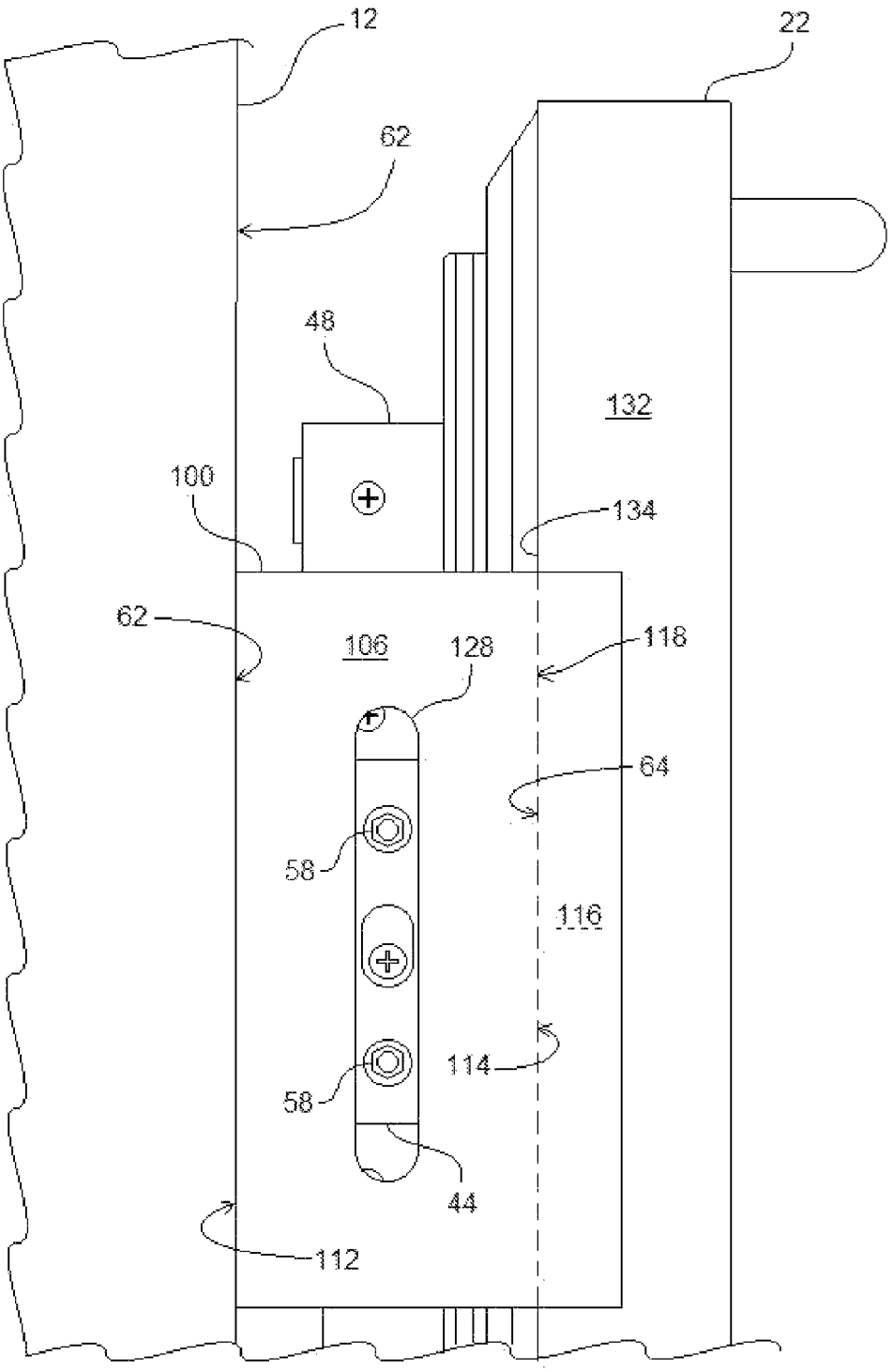


FIG. 9

ALIGNMENT GUIDE

TECHNICAL FIELD

The present disclosure relates to an alignment guide and more particularly, to a method of assembling an apparatus with the alignment guide.

BACKGROUND

A cabinet can include one or more compartments. For example, a refrigerator cabinet can include a freezer storage compartment and a fresh food storage compartment that are arranged over-and-under and separated by a horizontal center mullion wall in a bottom-mount freezer configuration. The compartment(s) of the cabinet can include a drawer assembly having a door and a receptacle that can be moved between an open and closed position. The door can be aligned relative to the cabinet to provide a seal between the door and the cabinet when the drawer assembly is in the closed position.

SUMMARY

The following presents a simplified summary of the disclosure in order to provide a basic understanding of some example aspects described in the detailed description.

In accordance with a first aspect, a method of assembling an apparatus with an alignment guide is provided. The alignment guide comprises a body having a first abutment surface and a second abutment surface. The apparatus comprises a cabinet defining an enclosure, a door, and a coupling mechanism for movably coupling the door to the cabinet to permit translational movement of the door relative the cabinet. The method comprises aligning the door relative to the cabinet with the alignment guide by abutting the first abutment surface of the alignment guide against a surface of the cabinet while abutting the second abutment surface of the alignment guide against a surface of the door. The method further comprises fixedly coupling the door to a support member of the coupling mechanism while the door is aligned to the cabinet with the alignment guide.

In one example of the first aspect, the door is aligned relative to the cabinet with the alignment guide by abutting the first abutment surface of the alignment guide against a front surface of the cabinet while abutting the second abutment surface of the alignment guide against a rear surface of the door.

In another example of the first aspect, the first abutment surface and the second abutment surface are substantially parallel to each other.

In yet another example of the first aspect, the door is fixedly coupled to the support member with at least one fastener. In one example the alignment guide comprises an aperture extending through the body. While the door is aligned relative to the cabinet with the alignment guide, the alignment guide is positioned such that the fastener can be fastened with a fastening tool extending through the aperture. In another example, the aperture is elongated and extends longitudinally in a direction substantially parallel to the first abutment surface and the second abutment surface.

In still yet another example of the first aspect, the coupling mechanism comprises a closing mechanism configured to pull the door toward the cabinet when the door is coupled to the support member and a distance between the surface of the cabinet and the surface of the door is less than a predetermined distance. In one example, when the first abutment surface of the alignment guide abuts the front surface of the cabinet and the second abutment surface of the alignment guide abuts the rear surface of the door, the distance between the surface of the cabinet and the surface of the door is less than the predetermined distance. In another example, when the first abutment surface of the alignment guide abuts the surface of the cabinet and the second abutment surface of the alignment guide abuts the surface of the door, the closing mechanism pulls the surface of the door against the second abutment surface.

In another example of the first aspect, the method further comprises adjustably coupling the door to the support member before aligning the door relative to the cabinet. In yet another example of the first aspect, the method further comprises separating the first abutment surface from the surface of the cabinet and separating the second abutment surface from the surface of the door after the door is fixedly coupled to the support member. In still yet another example of the first aspect, the body of the alignment guide comprises a third abutment surface that extends transverse to the first and second abutment surfaces. In one example, the door is aligned relative to the cabinet with the alignment guide by abutting the third abutment surface of the alignment guide against a second surface of the door or cabinet. In another example, the third abutment surface intersects with one of the first and second abutment surfaces to form a shoulder configured to mate with a corner portion of the door or cabinet.

The first aspect can be provided alone or in combination with one or any combination of the examples of the first aspect discussed above.

In accordance with a second aspect, an alignment guide for assembling an apparatus is provided. The apparatus comprises a cabinet defining an enclosure, a door, and a coupling mechanism for movably coupling the door to the cabinet to permit translational movement of the door relative the cabinet. The alignment guide comprises a body having a first abutment surface for abutting against a surface of the cabinet and a second abutment surface for abutting against a surface of the door while the first abutment surface abuts the surface of the cabinet. The alignment guide further comprises an aperture extending through the body. The door can be aligned relative to the cabinet with the alignment guide by abutting the second abutment surface against the surface of the door while the first abutment surface abuts the surface of the cabinet. The door can be fixedly coupled to the support member with at least one fastener. The aperture is configured such that a fastening tool can extend through the aperture to fasten the fastener while the door is aligned relative to the cabinet with the alignment guide.

In one example of the second aspect, a third abutment surface extending transverse to the first and second abutment surfaces for abutting against a second surface of the door or cabinet. In one example, the third abutment surface intersects with one of the first and second abutment surfaces to form a shoulder configured to mate with a corner portion of the door or cabinet.

In another example of the second aspect, the coupling mechanism comprises a closing mechanism configured to pull the door toward the cabinet when the door is coupled to the support member and a distance between the surface of the cabinet and the surface of the door is less than a predetermined distance. The alignment guide is configured such that when the first abutment surface of the alignment guide abuts the front surface of the cabinet and the second abutment surface of the alignment guide abuts the rear

surface of the door, the distance between the surface of the cabinet and the surface of the door is less than the predetermined distance.

In yet another example of the second aspect, the first abutment surface and the second abutment surface are substantially parallel to each other. In one example, the aperture is elongated and extends longitudinally in a direction substantially parallel to the first abutment surface and the second abutment surface.

The second aspect can be provided alone or in combination with one or any combination of the examples of the second aspect discussed above.

DETAILED DESCRIPTION OF THE DRAWINGS

Embodiments of the invention are better understood when the following detailed description is read with reference to the accompanying drawings, in which:

FIG. **1** is an exploded view of an example apparatus;

FIG. **2** is a perspective view of a door of the apparatus coupled to a pair of coupling mechanisms;

FIG. **3** is an exploded view of a coupling between the door and a coupling mechanism;

FIG. **4** is a cross-section view of the coupling between the door and a coupling mechanism;

FIG. **5** is a side view of the apparatus;

FIG. **6** is a perspective view of a first alignment guide for assembling the apparatus;

FIG. **7** is a side view of the apparatus being assembled with the first alignment guide;

FIG. **8** is a perspective view of a second alignment guide for assembling the apparatus; and

FIG. **9** is a side view of the apparatus being assembled with the second alignment guide.

DETAILED DESCRIPTION

Examples incorporating one or more embodiments are described and illustrated in the drawings. These illustrated examples are not intended to be limiting. For example, one or more aspects of an embodiment may be utilized in other embodiments and even other types of devices, such as a bottom-mount refrigerator, a top-mount refrigerator, or a side-by-side refrigerator. It is to be noted that the phrase "substantially parallel" as used herein means within 10 degrees or less of parallel, and more preferably, within 5 degrees or less of parallel.

Referring now to FIGS. **1-5**, an example apparatus **10** is shown comprising a cabinet **12** defining an enclosure **14**. The apparatus **10** in the present example is an appliance and, more specifically, a refrigerator with a fresh-food compartment with French doors and a bottom-mounted freezer compartment, the enclosure **14** being the freezer compartment. However, in some embodiments, the apparatus **10** can be a refrigerator with an alternative arrangement of compartments or a refrigerator with a single compartment. The apparatus **10** can be any cabinet-like structure that comprises a cabinet defining an enclosure and may be characterized as a drawer, a desk, a container, a chest, a safe, a cupboard, a cabinet or the like. The enclosure **14** of the cabinet **12** may provide a particular type of environment for items stored therein and, for example, may be suitable for refrigeration, heating, sanitization, a vacuum, etc.

The apparatus **10** can comprise a drawer assembly **20** that is insertable in the enclosure **14**. The drawer assembly **20** can comprise a door **22** and a receptacle **24**. The drawer assembly **20** can further comprise one or more coupling mechanisms **26** for movably coupling the door **22** and the receptacle **24** to the cabinet **12** to permit translational movement of the door **22** and the receptacle **24** relative to the cabinet **12**. In the present example, the door **22** and the receptacle **24** are separate components that collectively form a drawer **28**. However, in some examples, the door **22** and the receptacle **24** may be integral with each other. Moreover, in some examples, the drawer **28** may comprise the door **22** but not the receptacle **24**.

The receptacle **24** may have a box-like shape that is insertable in the enclosure **14** though in some embodiments, the receptacle **24** may have a shape other than that of a box and, for example, may be semi-cylindrical. The receptacle **24** may be a basket formed from multiple parts such as interwoven wires or the receptacle **24** may be formed by molding polymeric material. When inserted in the enclosure **14**, the receptacle **24** can make up the entire enclosure **14** or the receptacle **24** can make up a part of the enclosure **14**. The receptacle **24** can be accessed directly from the exterior of the cabinet **12** by opening the door **22** or the receptacle **24** may need to be pulled out after the door **22** is first opened.

The coupling mechanisms **26** allow the drawer **28** to move between an extended, open position and a retracted, closed position. The coupling mechanisms **26** can be provided laterally of the drawer **28**, for example, one on each side. Each coupling mechanism **26** may include a linear motion element **32** to allow the drawer **28** to move in and out of the enclosure **14** in a substantially linear motion. Furthermore, each coupling mechanism **26** can include a mounting bracket **36** about which the linear motion element **32** may be mounted. The mounting brackets **36** may be mounted on or near two interior surfaces **40** of the cabinet **12**, which are disposed opposite one another in the enclosure **14**.

The linear motion element **32** may, for example, be a slide mechanism that utilizes a plurality of elongate members that slide or glide against one another. The elongate members can be telescopic with varying cross-sections such that the elongate members can be housed within one another in the retracted position. The cross-sectional shapes can vary and in some examples, may have a "U" shape, a circular shape, etc. The linear motion element **32** may utilize plain bearings, ball bearings, roller bearings, or other means known in the art. The linear motion element **32** may utilize alternative structures such as wheels rolling about rails. The elongate members may include a stationary member and a moving member that moves relative to the stationary member to move between the retracted position and the extended position. In some examples, the elongate members may include one or more intermediate members linking the stationary member to the moving member such that the stationary member and the moving member correspond to the outermost portions of the linear motion element **32** in the extended position.

The coupling mechanisms **26** can each comprise a support member **44** that the receptacle **24** and/or the door **22** can be coupled to in order to support the receptacle **24** and/or the door **22**. For example, in some embodiments, a set of door brackets **48** having one or more threaded apertures **50** may be mounted on an internal side **52** of the door **22** that faces the cabinet **12**. The support members **44** can comprise one or more apertures **56** that correspond to the threaded apertures **50** of the door brackets **48**. A fastener **58** can be inserted through each aperture **56** of the support members **44** and threaded into the corresponding threaded apertures **50** of the door brackets **48**, thereby coupling the door **22** to the support members **44**.

In some embodiments, the coupling mechanisms **26** can each comprise a closing mechanism **60** configured to pull the door **22** toward the cabinet **12** when the door **22** is coupled to its support member **44** and a distance between a surface of the cabinet **12** and a surface of the door **22** is less than a predetermined distance. For example, the closing mechanism **60** may be configured to pull the door **22** toward the cabinet **12** when a distance between a front surface **62** of the cabinet **12** and a rear surface **64** of the door **22** is less than a predetermined distance of, for example, 15 cm (5.9 in). However, in other examples, the surfaces and/or predetermined distance can vary.

During assembly of the apparatus **10**, the door **22** can be adjustably coupled to the support members **44** so that the alignment of the door **22** relative to the support members **44** and cabinet **12** can be adjusted while the door **22** is coupled to and supported by the support members **44**. For example, in some embodiments, the apertures **56** of the support members **44** can be over-sized (relative to the threaded members of the fasteners **58**) and the fasteners **58** can be inserted through each aperture **56** and loosely threaded into the corresponding threaded apertures **50** of the door brackets **48**, thereby coupling the door **22** to the support members **44** but allowing the door brackets **48** to move horizontally and vertically relative to the support members **44** while the door **22** is coupled to the support members **44**. When adjustably coupled to the support members **44** in this manner, the door **22** can be aligned relative to the support members **44** and the cabinet **12**. For example, the door **22** can be aligned such that the rear surface **64** of the door **22** is parallel to the front surface **62** of the cabinet **12**. Preferably, the door **22** can be aligned such that the door **22** slides into sealing engagement with the cabinet **12** when the drawer **28** is in the closed position. Once the door **22** is aligned relative to the support members **44** and the cabinet **12**, the door **22** can be fixedly coupled to the support members **44** by, for example, tightening the fasteners **58** so that the door **22** cannot move relative to the support members **44**.

Although specific examples are provided above describing ways in which the door **22** can be adjustably or fixedly coupled to the support members **44** of the coupling mechanisms **26**, the door **22** can be adjustably or fixedly coupled to the support members **44** in a variety of other ways without departing from the scope of the invention.

Turning now to FIGS. **6-7**, an example alignment guide **80** for use in assembling the above apparatus **10** will now be described. The alignment guide **80** comprises a body **82** having a first major surface **84**, an opposing second major surface **86**, and four edge surfaces **88** that extend between and intersect with the first and second major surfaces **84**, **86**. The edge surfaces **88** and the first and second major surfaces **84**, **86** of the body **82** are all rectangular, planar surfaces that form right angles at their intersection, thereby forming a rectangular cuboid shape. However, the body **82** of the alignment guide **80** in some examples can have a shape other than a rectangular cuboid shape such as, for example, a rectangular parallelpiped shape, a cubic shape, or any other shape capable of performing the function described herein without departing from the scope of the invention.

The body **82** can comprise a first abutment surface **92** for abutting against a surface of the cabinet **12** or door **22** and a second abutment surface **94** for abutting against a surface of the other of the cabinet **12** or door **22**. The first and second abutment surfaces **92**, **94** in the present example are opposing edge surfaces **88** of the body **82** though in some examples, the first and second abutment surfaces **92**, **94** can be other surfaces of the body **82**. The first and second abutment surfaces **92**, **94** can extend substantially parallel to each other or the first and second abutment surfaces **92**, **94** can extend transverse to each other. In the present example, the first and second abutment surfaces **92**, **94** extend parallel to each other and are spaced apart a distance D_1.

The alignment guide **80** can comprise at least one aperture that extends through the body **82**. For instance, the alignment guide **80** can comprise an aperture **98** that extends through the body **82** from the first major surface **84** to the second major surface **86**. The aperture **98** can be elongated and can extend longitudinally in a direction substantially parallel to the first and second abutment surfaces **92**, **94**, as in the present example, or the aperture **98** can extend longitudinally in a direction transverse to the first and second abutment surfaces **92**, **94**. The aperture **98** can extend through the body **82** according to a variety of configurations without departing from the scope of the invention.

In some embodiments, the alignment guide **80** can be made of a low weight, rigid material such as, for example, expanded polystyrene. Using a low weight, rigid material such as expanded polystyrene can make it easier to handle the alignment guide **80** when using the alignment guide **80** to assemble the apparatus **10**. However, the alignment guide **80** can comprise a variety of other materials without departing from the scope of the invention.

With reference to FIG. **7**, a method will now be described for assembling the above apparatus **10** with the alignment guide **80**. The method can comprise the step of aligning the door **22** relative to the support members **44** and cabinet **12** with the alignment guide **80**. More specifically, the door **22** can be aligned relative to the support members **44** and cabinet **12** with the alignment guide **80** by abutting the first abutment surface **92** of the alignment guide **80** against a surface of the cabinet **12** or door **22** while abutting the second abutment surface **94** of the alignment guide **80** against a surface of the other of the cabinet **12** or door **22**. For example, as shown in FIG. **7**, the door **22** can be aligned by abutting the first abutment surface **92** against the front surface **62** of the cabinet **12** such that the first abutment surface **92** and the front surface **62** are substantially flush and parallel. While the first abutment surface **92** abuts the front surface **62**, the second abutment surface **94** can abut against the rear surface **64** of the door **22** such that the second abutment surface **94** and the rear surface **64** are substantially flush and parallel. Although FIG. **7** shows the first abutment surface **92** abutting the front surface **62** of the cabinet **12** and the second abutment surface **94** abutting the rear surface **64** of the door **22**, in some examples, the door **22** can be aligned by abutting the second abutment surface **94** against the front surface **62** of the cabinet **12** and the first abutment surface **92** against the rear surface **64** of the door **22**. Moreover, the door **22** can be aligned by abutting the first and second abutment surfaces **92**, **94** against surfaces of the door **22** and cabinet **12** besides the surfaces **62**, **64**.

The body **82** of the alignment guide **80** can be configured such that as a result of simultaneous abutment of the first and second abutment surfaces **92**, **94** with the surfaces of the door **22** and cabinet **12**, the door **22** and cabinet **12** will be aligned relative to each other. For example, if the body **82** is configured such that the first and second abutment surfaces **92**, **94** are substantially parallel to each other, simultaneous abutment of the first and second abutment surfaces **92**, **94** with the surfaces **62**, **64** of the cabinet **12** and door **22** will result in the surfaces **62**, **64** being substantially parallel to each other. Preferably, the body **82** is configured such that as a result of simultaneous abutment of the first and second abutment surfaces **92**, **94** with the surfaces **62**, **64** of the

cabinet **12** and door **22**, the door **22** (if fixed in this position relative to the support members **44**) will slide into sealing engagement with the cabinet **12** when the alignment guide **80** is removed and the drawer **28** is moved to the closed position.

As discussed above, in some embodiments, the coupling mechanisms **26** of the apparatus **10** can each comprise a closing mechanism **60** configured to pull the door **22** toward the cabinet **12** when the door **22** is coupled to its support member **44** and a distance between a surface of the cabinet **12** and a surface of the door **22** is less than a predetermined distance. In some examples, the alignment guide **80** can be configured such that when the door **22** is aligned relative to the cabinet **12** with the alignment guide **80** by abutting the first and second abutment surfaces **92**, **94** against the surfaces of the cabinet **12** and door **22** as discussed above, the distance between the surfaces of the cabinet **12** and door **22** will be less than the predetermined distance. For example, the distance D_1 between the first and second abutment surfaces **92**, **94** can be less than the predetermined distance such that when the first abutment surface **92** abuts the front surface **62** of the cabinet **12** and the second abutment surface **94** abuts the rear surface **64** of the door **22**, the distance between the surfaces **62**, **64** of the cabinet **12** and door **22** will be substantially equivalent to the distance D_1 and less than the predetermined distance. In such an example, if the door **22** is coupled to a support member **44** of one of the coupling mechanisms **26**, its corresponding closing mechanism **60** will pull the rear surface **64** of the door **22** against the alignment guide **80**, thereby providing a compressive force against the alignment guide **80** to help hold the position of the alignment guide **80**.

Once the door **22** is aligned relative to the support members **44** and cabinet **12** with the alignment guide **80**, the method can comprise the step of fixedly coupling the door **22** to one or both of the support members **44** of the coupling mechanisms **26** while the door **22** is aligned to the cabinet **12** with the alignment guide **80**. For example, the door **22** can be fixedly coupled to the support members **44** using the fasteners **58** so that the door **22** cannot move relative to the support members **44**, though in other examples, the door **22** can be fixedly coupled to the support members **44** using other means known in the art. After the door **22** is fixedly coupled to one or both of the support members **44**, the alignment guide **80** can be removed by separating the first abutment surface **92** from the front surface **62** of the cabinet **12** and separating the second abutment surface **94** from the rear surface **64** of the door **22**. By fixing the door **22** to one or both of the support members **44** prior to separating the first and second abutment surfaces **92**, **94** from the cabinet **12** and door **22**, the door **22** will remain in its aligned state even after the alignment guide **80** is removed.

In some examples, the method can comprise the step of adjustably coupling the door **22** to one or both of the support members **44** of the coupling mechanisms **26** before aligning the door **22** relative to the cabinet **12** with the alignment guide **80**. More specifically, the door **22** can be adjustably coupled to one or both of the support members **44** so that the door **22** can be aligned with the alignment guide **80** while the door **22** is coupled to and supported by the support members **44**. For example, as discussed above, the fasteners **58** can be inserted through the apertures **56** of the support members **44** and loosely threaded into the corresponding threaded apertures **50** of the door brackets **48** to adjustably couple the door **22**, though the door **22** can be adjustably coupled to the support members **44** using other means known in the art in some examples.

In some examples, prior to fixing the door **22** to the support members **44** with the fasteners **58**, the method can comprise the step of positioning the alignment guide **80** such that while the door **22** is aligned relative to the cabinet **12** with the alignment guide **80**, the one or more of the fasteners **58** can be fastened with a fastening tool extending through the aperture **98** of the alignment guide **80**, as shown in FIG. **7**. The aperture **98** can be sized or otherwise configured such that in this position, a fastening tool such as, for example, a socket, can fit through the aperture **98** to fasten the one or more of the fasteners **58**. By positioning the alignment guide **80** in this manner, the alignment guide **80** will not obstruct access to the one or more of the fasteners **58** by the fastening tool during the step of fixedly coupling the door **22** to the one or both of the support members **44**.

Turning now to FIGS. **8-9**, another example alignment guide **100** for use in assembling the above apparatus **10** will now be described. The alignment guide **100** comprises a body **102** having a first major surface **104**, an opposing second major surface **106**, and four edge surfaces **108** that extend between and intersect with the first and second major surfaces **104**, **106**. The first and second major surfaces **104**, **106** are both rectangular, planar surfaces that extend parallel to each other, the second major surface **106** being wider than the first major surface **104**. Meanwhile, two of the edges surfaces **108** are L-shaped, opposing, planar surfaces that extend perpendicular to the first and second major surfaces **104**, **106**. One of the other two edge surfaces **108** is a rectangular, planar surface that extends perpendicular to the first and second major surfaces **104**, **106** while the fourth edge surface **108** is a stepped surface. However, the first and second major surfaces **104**, **106** and the four edge surfaces **108** can take on a variety of other shapes and arrangements capable of performing the function described herein without departing from the scope of the invention.

The body **102** can comprise a first abutment surface **112**, a second abutment surface **114**, and a third abutment surface **116** for abutting against surfaces of the cabinet **12** or the door **22**. The first and second abutment surfaces **112**, **114** can extend parallel to each other while the third abutment surface **116** extends transverse to the first and second abutment surfaces **112**, **114**. Moreover, the third abutment surface **116** can intersect with one of the first and second abutment surfaces **112**, **114** to form a shoulder which, as discussed below, can be configured to mate with a corner portion of one of the cabinet **12** and the door **22**. In the present example, the first and second abutment surfaces **112**, **114** extend parallel to each other and are spaced apart a distance D_2. Meanwhile, the third abutment surface **116** extends perpendicular to the first and second abutment surfaces **112**, **114** and intersects with the second abutment surface **114** to form a shoulder **118**. The first, second and third abutment surfaces **112**, **114**, **116** can take on a variety of different configurations without departing from the scope of the invention.

The alignment guide **100** can comprise at least one aperture that extends through the body **102**. For instance, the alignment guide **100** can comprise an aperture **128** that extends through the body **102** from the first major surface **104** to the second major surface **106**. The aperture **128** can be elongated and can extend longitudinally in a direction substantially parallel to the first and second abutment surfaces **112**, **114**, as in the present example, or the aperture **128** can extend longitudinally in a direction transverse to the first and second abutment surfaces **112**, **114**. The aperture **128**

can extend through the body **102** according to a variety of configurations without departing from the scope of the invention.

In some embodiments, the alignment guide **100** can be made of a low weight, rigid material such as, for example, expanded polystyrene. Using a low weight, rigid material such as expanded polystyrene can make it easier to handle the alignment guide **100** when using the alignment guide **100** to assemble the apparatus **10**. However, the alignment guide **100** can comprise a variety of other materials without departing from the scope of the invention.

With reference to FIG. **9**, a method will now be described for assembling the above apparatus **10** with the alignment guide **100**. The method can comprise the step of aligning the door **22** relative to the support members **44** and cabinet **12** with the alignment guide **100**. More specifically, the door **22** can be aligned relative to the support members **44** and cabinet **12** with the alignment guide **100** by simultaneously abutting the first, second and third abutment surfaces **112**, **114**, **116** against surfaces of the cabinet **12** and door **22**. For example, as shown in FIG. **9**, the door **22** can be aligned by abutting the first abutment surface **112** against the front surface **62** of the cabinet **12** such that the first abutment surface **112** and the front surface **62** are substantially flush and parallel. While the first abutment surface **112** abuts the front surface **62**, the second abutment surface **114** can abut against the rear surface **64** of the door **22** such that the second abutment surface **114** and the rear surface **64** are substantially flush and parallel. Moreover, the third abutment surface **116** can abut against a side surface **132** of the door **22** such that the third abutment surface **116** and the side surface **132** are substantially flush and parallel. The shoulder **118** formed by the second and third abutment surfaces **114**, **116** is configured to mate with a corner portion **134** of the door **22** when the second and third abutment surfaces **114**, **116** simultaneously abut the surfaces **64**, **132** of the door **22**.

By providing three abutment surfaces for the alignment guide **100** to abut against surfaces of the door **22** and cabinet **12**, it can be easier to position and hold the alignment guide **100** against the surfaces of the door **22** and cabinet **12**, particularly when two of the abutment surfaces are transverse to each other and form a shoulder for a corner portion of one of the cabinet **12** and door **22** to mate with.

The body **102** of the alignment guide **100** can be configured such that as a result of simultaneous abutment of the first, second and third abutment surfaces **112**, **114**, **116** with the surfaces of the door **22** and cabinet **12**, the door **22** and cabinet **12** will be aligned relative to each other. For example, if the body **102** is configured such that the first and second abutment surfaces **112**, **114** are substantially parallel to each other, simultaneous abutment of the first and second abutment surfaces **112**, **114** with the surfaces **62**, **64** of the cabinet **12** and door **22** will result in the surfaces **62**, **64** being substantially parallel to each other. Preferably, the body **102** is configured such that as a result of simultaneous abutment of the first and second abutment surfaces **112**, **114** with the surfaces **62**, **64** of the cabinet **12** and door **22**, the door **22** (if fixed in this position relative to the support members **44**) will slide into sealing engagement with the cabinet **12** when the alignment guide **100** is removed and the drawer **28** is moved to the closed position.

As discussed above, in some embodiments, the coupling mechanisms **26** of the apparatus **10** can each comprise a closing mechanism **60** configured to pull the door **22** toward the cabinet **12** when the door **22** is coupled to its support member **44** and a distance between a surface of the cabinet **12** and a surface of the door **22** is less than a predetermined distance. In some examples, the alignment guide **100** can be configured such that when the door **22** is aligned relative to the cabinet **12** with the alignment guide **100** by abutting the first and second abutment surfaces **112**, **114** against the surfaces of the cabinet **12** and door **22** as discussed above, the distance between the surfaces of the cabinet **12** and door **22** will be less than the predetermined distance. For example, the distance D_2 between the first and second abutment surfaces **112**, **114** can be less than the predetermined distance such that when the first abutment surface **112** abuts the front surface **62** of the cabinet **12** and the second abutment surface **114** abuts the rear surface **64** of the door **22**, the distance between the surfaces **62**, **64** of the cabinet **12** and door **22** will be substantially equivalent to the distance D_2 and less than the predetermined distance. In such an example, if the door **22** is coupled to a support member **44** of one of the coupling mechanisms **26**, its corresponding closing mechanism **60** will pull the rear surface **64** of the door **22** against the alignment guide **100**, thereby providing a compressive force against the alignment guide **100** to help hold the position of the alignment guide **100**.

Once the door **22** is aligned relative to the support members **44** and cabinet **12** with the alignment guide **100**, the method can comprise the step of fixedly coupling the door **22** to one or both of the support members **44** of the coupling mechanisms **26** while the door **22** is aligned to the cabinet **12** with the alignment guide **100**. For example, the door **22** can be fixedly coupled to the support members **44** using the fasteners **58** so that the door **22** cannot move relative to the support members **44**, though in other examples, the door **22** can be fixedly coupled to the support members **44** using other means known in the art. After the door **22** is fixedly coupled to one or both of the support members **44**, the alignment guide **100** can be removed by separating the first, second and third abutment surfaces **112**, **114**, **116** from the surfaces **62**, **64**, **132** of the cabinet **12** and door **22**. By fixing the door **22** to one or both of the support members **44** prior to separating the first, second and third abutment surfaces **112**, **114**, **116** from the cabinet **12** and door **22**, the door **22** will remain in its aligned state even after the alignment guide **100** is removed.

In some examples, the method can comprise the step of adjustably coupling the door **22** to one or both of the support members **44** of the coupling mechanisms **26** before aligning the door **22** relative to the cabinet **12** with the alignment guide **100**. More specifically, the door **22** can be adjustably coupled to one or both of the support members **44** so that the door **22** can be aligned with the alignment guide **100** while the door **22** is coupled to and supported by the support members **44**. For example, as discussed above, the fasteners **58** can be inserted through the apertures **56** of the support members **44** and loosely threaded into the corresponding threaded apertures **50** of the door brackets **48** to adjustably couple the door **22**, though the door **22** can be adjustably coupled to the support members **44** using other means known in the art in some examples.

In some examples, prior to fixing the door **22** to the support members **44** with the fasteners **58**, the method can comprise the step of positioning the alignment guide **100** such that while the door **22** is aligned relative to the cabinet **12** with the alignment guide **100**, the one or more of the fasteners **58** can be fastened with a fastening tool extending through the aperture **128** of the alignment guide **100**, as shown in FIG. **9**. The aperture **128** can be sized or otherwise configured such that in this position, a fastening tool such as, for example, a socket, can fit through the aperture **128** to fasten the one or more of the fasteners **58**. By positioning the

alignment guide **100** in this manner, the alignment guide **100** will not obstruct access to the one or more of the fasteners **58** by the fastening tool during the step of fixedly coupling the door **22** to the one or both of the support members **44**.

A number of examples have been described above. Nevertheless, it will be understood that various modifications may be made. For example, suitable results may be achieved if the described elements are combined in a different manner and/or replaced or supplemented by other elements or their equivalents.

What is claimed is:

1. A method of assembling an apparatus using an alignment guide comprising a body having a first abutment surface and a second abutment surface, the apparatus comprising a cabinet defining an enclosure, a door, and a coupling mechanism for movably coupling the door to the cabinet to permit translational movement of the door relative the cabinet, the method comprising:

aligning the door relative to the cabinet with the alignment guide by abutting the first abutment surface of the alignment guide against a surface of the cabinet while abutting the second abutment surface of the alignment guide against a surface of the door; and

fixedly coupling the door to a support member of the coupling mechanism while the door is aligned to the cabinet with the alignment guide,

wherein the door is fixedly coupled to the support member with at least one fastener, and

wherein the alignment guide comprises an aperture extending through the body, further wherein while the door is aligned relative to the cabinet with the alignment guide, the alignment guide is positioned such that the at least one fastener can be fastened with a fastening tool extending through the aperture.

2. The method of claim **1**, wherein the door is aligned relative to the cabinet with the alignment guide by abutting the first abutment surface of the alignment guide against a front surface of the cabinet while abutting the second abutment surface of the alignment guide against a rear surface of the door.

3. The method of claim **1**, wherein the first abutment surface and the second abutment surface are substantially parallel to each other.

4. The method of claim **1**, wherein the aperture is elongated and extends longitudinally in a direction substantially parallel to the first abutment surface and the second abutment surface.

5. The method of claim **1**, further comprising adjustably coupling the door to the support member before aligning the door relative to the cabinet.

6. The method of claim **1**, further comprising separating the first abutment surface from the surface of the cabinet and separating the second abutment surface from the surface of the door after the door is fixedly coupled to the support member.

7. The method of claim **1**, wherein the body of the alignment guide comprises a third abutment surface that extends transverse to the first and second abutment surfaces.

8. The method of claim **7**, wherein the door is aligned relative to the cabinet with the alignment guide by abutting the third abutment surface of the alignment guide against a second surface of the door or cabinet.

9. The method of claim **7**, wherein the third abutment surface intersects with one of the first and second abutment surfaces to form a shoulder configured to mate with a corner portion of the door or cabinet.

10. A method of assembling an apparatus using an alignment guide comprising a body having a first abutment surface and a second abutment surface, the apparatus comprising a cabinet defining an enclosure, a door, and a coupling mechanism for movably coupling the door to the cabinet to permit translational movement of the door relative the cabinet, the method comprising:

aligning the door relative to the cabinet with the alignment guide by abutting the first abutment surface of the alignment guide against a surface of the cabinet while abutting the second abutment surface of the alignment guide against a surface of the door; and

fixedly coupling the door to a support member of the coupling mechanism while the door is aligned to the cabinet with the alignment guide,

wherein the coupling mechanism comprises a closing mechanism configured to pull the door toward the cabinet when the door is coupled to the support member and a distance between the surface of the cabinet and the surface of the door is less than a predetermined distance.

11. The method of claim **10**, wherein when the first abutment surface of the alignment guide abuts the front surface of the cabinet and the second abutment surface of the alignment guide abuts the rear surface of the door, the distance between the surface of the cabinet and the surface of the door is less than the predetermined distance.

12. The method of claim **10**, wherein when the first abutment surface of the alignment guide abuts the surface of the cabinet and the second abutment surface of the alignment guide abuts the surface of the door, the closing mechanism pulls the surface of the door against the second abutment surface.

13. An alignment guide for assembling an apparatus comprising a cabinet defining an enclosure, a door, and a coupling mechanism for movably coupling the door to the cabinet to permit translational movement of the door relative the cabinet, the alignment guide comprising:

a body having a first abutment surface for abutting against a surface of the cabinet and a second abutment surface for abutting against a surface of the door while the first abutment surface abuts the surface of the cabinet; and

an aperture extending through the body,

wherein the door can be aligned relative to the cabinet with the alignment guide by abutting the second abutment surface against the surface of the door while the first abutment surface abuts the surface of the cabinet, the door can be fixedly coupled to a support member of the coupling mechanism with at least one fastener, and the aperture is configured such that a fastening tool can extend through the aperture to fasten the fastener while the door is aligned relative to the cabinet with the alignment guide.

14. The alignment guide of claim **13**, further comprising a third abutment surface extending transverse to the first and second abutment surfaces for abutting against a second surface of the door or cabinet.

15. The alignment guide of claim **14**, wherein the third abutment surface intersects with one of the first and second abutment surfaces to form a shoulder configured to mate with a corner portion of the door or cabinet.

16. The alignment guide of claim **13**, wherein the coupling mechanism comprises a closing mechanism configured to pull the door toward the cabinet when the door is coupled to the support member and a distance between the surface of the cabinet and the surface of the door is less than a predetermined distance, further wherein the alignment

guide is configured such that when the first abutment surface of the alignment guide abuts the front surface of the cabinet and the second abutment surface of the alignment guide abuts the rear surface of the door, the distance between the surface of the cabinet and the surface of the door is less than the predetermined distance.

17. The alignment guide of claim **13**, wherein the first abutment surface and the second abutment surface are substantially parallel to each other.

18. The alignment guide of claim **17**, wherein the aperture is elongated and extends longitudinally in a direction substantially parallel to the first abutment surface and the second abutment surface.

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